

VOYAGE OF THE "NIAGARA" WITH THE ATLANTIC TELEGRAPHIC CABLE.

The Atlantic Cable is at fault! For the purpose for which it was laid it is at present useless! and all the rejoicings at the success of the great enterprise, alas, now lack the *value* of the fact! But the fact remains; its powers are on record, and the proof is established not only of the possibility of laying a cable in so deep a sea as the Atlantic, but that the insularity will also continue perfect at its greatest depth. The injured part, or that where continuity is broken, is said to be beyond two or three hundred miles from the coast of Ireland, and that for the present we must be content with exulting in what has been achieved. There is a fearful precipice of a mile in depth at 160 miles from Valentia; may it not have happened there, and may it not be wise to avoid this hereafter by going further North or South to pass into deep water. However this may be, the fruits of the enterprise have been tasted, and whether the virtue of the submerged cable is ever recovered or not, whether it ever again is made to speak the words of peace and good will between two great nations, it cannot long remain alone in its oozy bed. It cannot, even when in an efficient working state, do a tithe of the work required of it,—and we might well rejoice at the fact that has been established by it, knowing that what has been done by man's hands with the blessing of the Almighty may be done again.

We have already recorded our own half of the great work of depositing the cable, that work which was considered next to impossible, and the narrative abundantly shows the difficulties which were overcome. The other half must not be omitted, or its history will be imperfect, and moreover it is the share which our brethren of America have taken in the good work. It is truly said that those only who underwent the trial know the amount of difficulty which they overcame, and the privations which they endured; but the navy of both countries have performed their share of the work in spite of all difficulties, although the means of doing it have certainly been the most unfavourable to ourselves. The facility with which the *Niagara* got through her part of the work compared with the *Agamemnon*, will be evident in the following interesting narrative.

Thursday, July 29th.—The *Agamemnon* has now taken her position about a hundred fathoms from the stern of the *Niagara*, and the hawser has been passed between the two ships previous to making the splice. Before the commencement of operations, however, Captains Preedy and Aldham came on board of our ship, and Mr. Field and one of the electricians visited the *Agamemnon* to make further arrangements in regard to the work before us. The captains have returned to their ships, the splice is made, and the work of paying out proceeds, while the two ships move so slowly through the water that their motion is hardly perceptible. The rate of the cable is cer-

tainly much faster than that of either of the vessels, for the simple reason that it has to descend to a depth of about two miles, and it will take a considerable time to do that. The announcement comes from the electrician's office soon after the splice has been lowered, that the continuity is perfect; and with this assurance the engineers go on more boldly with the work.

The work of paying out the cable was commenced at one o'clock. The speed of the vessel was gradually increased after sufficient had been lowered over the stern to reach the bottom, and by two o'clock five miles had left the ship, and she had gone two miles from the starting point. The observation taken by the *Agamemnon* and *Niagara* showed the position of both ships as follows:—lat. $52^{\circ} 9'$, long. $32^{\circ} 29'$. To accomplish the work, the former has 1100 nautical miles and 300 tons of coal; while the latter had the same amount of cable and 500 tons of coal. This will give our ship from ten to fifteen days' steaming; while the *Agamemnon* has sufficient for ten days, should she burn at the rate of thirty tons per day. But if we should find that we have not enough to reach the land with, we will, if necessary, burn the spare spars; and should we be still further pressed, we will take down even the bulkheads for fuel. It is not very probable, however, that we shall be reduced to such straits. Mr. Follansbee, our chief engineer, assures us that we shall have sufficient. Let us once get sight of Newfoundland, however, and though every ton of coal in our bunkers were expended, we will contrive to get into Trinity Bay and land the cable.

We have already payed out a little over thirty miles of cable, although it is not yet seven o'clock, and the ship's speed varies from four to five miles per hour. There is a long distance yet, it is true, between this and Newfoundland, and thirty miles is but a very small fraction of 882 miles,—the distance from the point at which we made the splice to the telegraph station at the head of Trinity Bay. The depth of water here, according to the chart of the soundings, is 1,550 fathoms; but the depth, so far as our experience testifies, presents little or no obstacle to the laying of the cable. The sea is smooth, the barometer well up; and if we can only do for the next seven days as well as we have done since one o'clock, we shall be at Newfoundland by the 5th of August, and in New York sometime between the 15th and 20th of the same month. But we have been somewhat too hasty in our calculations, for our ship has just slowed down and the propeller has ceased working for the last ten minutes. There must be something wrong to cause this interruption. Let us take a look at the machine. The cable still goes out, which certainly would not be the case if it had parted. Ah! the continuity! that's it—there's where the difficulty lies. And as the electricians are the only parties who can inform us on that point, we at once go in search of them. A visit to their office explains the whole matter. The continuity is not gone altogether, but is defective—so defective that it is impossible to get a signal through the cable. Still there is not "dead earth" upon it, and all hope, therefore, is not lost. When dead earth,

as it is termed, is on the conductor, then, indeed, the difficulty is beyond remedy, for it shows that the conductor must be broken and is thrown under the influence of terrestrial magnetism. But the continuity is not gone, and although with darkening prospects, we are still safe while it remains, even imperfect as it is.

The old adage that "bad news travels fast," was never more fully realized than in this instance. The sad intelligence was known to every one on board the ship about fifteen minutes after it was announced to Mr. Field, and those who predicted the failure of the expedition fell back upon their prophecy, and hinted in a modest way at their own perception. It would be absurd to say that the occurrence was not discouraging; it was painfully so, for the hopes of some of us had really begun to revive, and we were gaining confidence every hour. Now nothing could be done. We must wait until the continuity should return or take its final departure. And it did return, and with greater strength than ever. At ten minutes past nine p.m., the electrician on duty observed its failing, and at 11.30 he had the gratifying intelligence for us that it was "all right again." The machinery was once more set in motion, the cable was soon going out at the rate of six miles an hour, and the electrical signals were passing between the ships as regularly as if nothing had occurred to interfere with or interrupt the continuity. No explanation could be given as to the cause of the accident that was to be relied upon. It was supposed, however, that it had broken on board the *Agamemnon*, and that the end was secured and spliced before it could get out of the ship.

A system has been devised for transmitting and receiving signals through the cable, from ship to ship, during the progress of paying out. This has been devised by Mr. Laws and Mr. De Sauty, the two gentlemen who have charge of the electrical department on board this ship. It consists in an exchange of currents sent alternately during a period of ten minutes by each ship, and which not only serve to give an accurate test of the continuity and insulation of the conducting wire, but also to give certain signals which may be required to be sent when the ships are far apart.

Friday, 30th.—All through the night the sound of the machinery never ceased, and the continuity remained perfect. At half-past three o'clock this morning the last flake of the forward spar deck coil begins to run out, and considerable anxiety is manifested in regard to the change to that on the forward main deck, which is immediately beneath. Every precaution, however, has been taken to guard against accident, and by a quarter to four the agony is over; the first turn of the new coil has been reached, and the cable is going out in splendid style. The ease with which the line runs out of the ship at this distance from the stern, for we are now about 270 feet from that point, is calculated to infuse new confidence into every one who sees it, but it is, after all, a confidence terribly shaken by vague fears of the future. We have five or six days to run before we get into Trinity Bay, and in that time, which in our state of suspense seems so many

years, what may not occur? We are afraid even to think of success, so often have our hopes been blasted by disappointment; the very thought of the magnitude of the undertaking brings with it a feeling almost akin to discouragement. Why, if three hundred miles have been submerged, is it not possible to lay two or three thousand? This is a question which appears very simple, and which is yet rather difficult to answer. It is easy to say that the breaking of the cable is caused by defective machinery, but who is able to account satisfactorily for the break of continuity which occurred in June last, after forty miles had been paid out of both ships? This it is which raises the gravest doubts in the minds of all, and which makes even the most hopeful apprehensive as to the result. That word "continuity" has created more uneasiness and anxiety than anything connected with the work, simply because it is seemingly beyond the control of scientific skill, and, once gone, cannot be restored by human ingenuity. At any moment we may hear that it has parted, and, sleeping or waking, the fear that it will haunt us like a nightmare. Oh, how we long to see that bleak and barren, but, to us, more desirable coast than any that ever met the gaze of enraptured voyager. What would we not give to be steaming up towards the head of Trinity Bay with the telegraph station in full view! Five or six days yet to run, at the end of which time we may be returning to Queenstown, again to bring the news of disaster and defeat. But we must not think of defeat now; we are bound for Newfoundland, and if Providence favours us, two or three weeks at the farthest will see us entering the bay of New York, after having successfully accomplished the greatest work ever undertaken by man.

But let us see what progress we have made during the last twenty-three hours, for it is now twelve o'clock, and we have been paying out since one yesterday afternoon. The following table shows the distance run according to the different logs therein stated:

By observation	.	.	.	.	89 miles.
By ship's log	.	.	.	.	99½ "
By engineer's log	.	.	.	.	102 "
By patent log	.	.	.	.	105.3 "

The length of cable paid out, according to the indicator attached to the machine, is 131 miles and 900 fathoms, or a surplus over the distance run, as shown by observation, of 42 miles and 900 fathoms, which is equal to about 48 per cent. This is a ruinous expenditure, and if it should continue at the same rate for the next two or three days, we might as well abandon the undertaking at once, turn our ship's head towards England, and make the best of our way back. It must not be forgotten, however, that in starting a large amount of slack was allowed, so as to prevent an undue strain upon the cable before some fifteen or twenty miles were paid out. Of course it is almost needless to say that we shall be forced into no such expenditure during the next twenty-four hours. Besides, we expect to be able to run out the cable at the rate of seven and eight miles an hour yet,

and experience has proved that the faster it is payed out the loss is proportionally diminished. There is sufficient to allow a surplus of 30 per cent.; and if that should not be enough, we can land the end at the entrance instead of at the head of Trinity Bay, as was proposed in the event of our having sufficient for the purpose. The depth of water during the last twenty-four hours has varied from 1,600 to 1,975 fathoms; but it appears to have no effect upon the laying of the cable,—in fact, the great depth of water is one of the least obstacles against which we have to contend.

The electrician on watch has just reported to Mr. Field that he received a despatch at twenty-one minutes past two from the *Agamemnon*, which is now some 230 miles off, and that they had payed out from that vessel 150 miles; and that at thirty-six minutes past two we inform them by electric signals that we have laid the same length. This shows that she is ahead of us by fifteen minutes, which is equal to a mile and a half.

We have thus far got along most successfully; but the remembrance of that unpleasant incident about the continuity still clings to our minds, and forbids us to indulge in any sanguine expectations. The weather, too, is beginning to look unfavourable; and, what is still worse, the barometer is falling, though slowly. The wind continues to increase towards evening; but up to seven o'clock it has not reached the magnitude of a gale. It is only blowing fresh—what sailors would call a stiff topgallant breeze—and as long as it keeps at that we are all right and have nothing to fear. Nine o'clock, and still no gale; but unless the barometer is astray we shall catch it some time during the night. Ten o'clock has just struck, but strange to say the wind is going down and the sea is following the example. The night is clearing up. Confidence is rising rapidly, and the bids in favour of its success are becoming heavy in the imaginary stock market which has been established on board. When it was reported that the continuity was not so perfect as we could wish, stocks went down with a terrible rush, and there were no bidders at any price. But twenty-four hours decided the matter; the Atlantic Telegraph ran up to 50 per cent., and continued going up till it reached the remarkable figure of 75. The cable is, indeed, the absorbing subject of conversation on board, and other things are only spoken of as they bear some relation to it. Nothing is thought of during the day but cable, and at night I believe two thirds of the crew don't dream of anything else. We have all become superstitious, and the man who has the most auspicious dreams is as eagerly listened to as if he were an infallible oracle.

"I dreamed last night," said one of these, "that we had laid the cable, and there was not a single break in it; and my dreams always come in true, as M—— can tell you; for I told him a thing that he found out had happened exactly at the time revealed to me." This was considered by some as proof positive, while those who looked with contempt at prognostications, auspicious dreams, auguries, omens, and such like, smiled upon the dreamer with indulgent consideration.

They were evidently pleased to listen, and although they would emphatically have contradicted the charge of being superstitious, the gratification which they manifested had somewhat of a leaning in that direction.

Saturday, 31st.—We have now one of the finest days for cable laying we have had during this expedition. The coilers who sit on the margin of each flake are amusing themselves in the intervals of their work by manufacturing little balls out of the tar, which has become hardened by exposure to the air, and throwing them down before each turn as it is taken up from the coil. As the cable passes out at the rate of from seven to eight miles an hour it strikes these balls with considerable force while it courses round the circle, sending them before it with still greater speed. The rate at which they run depends to a great extent on their spherical form, and he who makes them roundest is generally the winner. As no bets, however, are offered or made, no pecuniary advantage accrues to any of the parties concerned. Occasionally a lump of chalk, a small potato, or a piece of wax candle, is entered for the race, in which the chalk generally comes out a head. As it is impossible for any accident to occur from this, and as it affords a harmless amusement to the men, without interrupting the work, they are not interfered with. They are always ready at the end of each flake to lead the cable into the centre, and perform the operation so well that a kink is almost a matter of impossibility. It is a pleasure to look upon their earnest eager faces, and observe the care with which they handle the line while passing it from the outer edge of the circle to the cone. Although this operation requires to be repeated about fifty times a day, they always perform it successfully. If they allow a single kink to take place the expedition might be considered at an end, for it would be next to impossible to remedy the damage. Not a man among them who does not know that, and who does not realise the full importance of the duty with which he is intrusted. The reader must by this time be aware that in paying out the cable the greatest caution has to be observed to prevent it from kinking, and as there is a much greater tendency to kink near the cone, which is in the centre of the circle, than as you approach the circumference, the ship is always slowed down about five minutes before the last or outermost turn is taken up. As soon, however, as this critical part of the work is safely performed, word is passed to the engineer to "go ahead," and immediately after the huge propeller is again revolving with its former velocity.

Contrary to the predictions of some, the change from the forward main deck coil to that on the deck immediately below took place at half-past five this afternoon. It was thought that we should not have it all payed out before midnight, but the speed had been somewhat increased during the last twenty-four hours, and the rapidity with which flake after flake passed out satisfied those on watch that the coil would be exhausted long before the time announced. At least an hour before the change was made, the outer boundaries of the circle in which the cable lay was literally crowded with men, and

never was greater interest manifested in any spectacle than that which they exhibited in the proceedings before them. There were serious doubts and misgivings as to the successful performance of this important part of the work, and these only served to increase the feeling of anxiety and suspense with which they silently and breathlessly await the critical moment. The last flake has been reached, and as turn after turn leaves the circle every eye is intently fixed on the cable. Now there are but thirty turns remaining; and, as the first of these is unwound, Mr. Everett, who has been in the circle during the last half hour, gives the order to the engineer on duty to "slow down." In a few moments there is a perceptible diminution in the speed, which continues diminishing till it has reached the rate of about two miles an hour.

"Look out now, men," says Mr. Everett, in his usual quiet, self-possessed way. The men are as thoroughly wide awake as they can be, and are waiting eagerly for the moment when they shall lift the bight of the cable, and deliver it out safely. One of the planks in the side of the cone has been loosened, and just as they are about taking the cable in their hands, it is removed altogether, so that as the last yard passes out of the now empty circle, the line commences paying out from the circle below, or the orlop deck coil, as it is called. The men, who are no other than the coilers, have done their work well, and the applause with which they are greeted by the crowd of admiring spectators is the most gratifying testimony they can receive of the fact. They have hardly passed the cable out of the circle before they are received with as enthusiastic a demonstration of approval as the rules of the navy will permit. Such a clapping of hands was never heard at the Academy of Music, and if they had only been indulged a little, they would have raised such a cheer as would have roused old Neptune from the profoundest depths of his marine dominions.

The hatches, which were covered over in the construction of the circle, are opened, and the daylight is thrown upon the top of the coil, from which the first flake is now being payed out. This is our third day, and since the two ships started from mid-ocean, we have payed out a greater length of cable than was ever laid before. We hardly dare ask ourselves if we shall lay the line the whole distance—it seems too much to hope for—and we dread to think of the future. We count the day not by hours, but by minutes, and retire at night not to sleep, but to think through the tedious and weary moments of the all-absorbing subject. The sound of the machinery has become as familiar to us as that of our own voices, and when it is drowned in any other noise, we listen with eagerness to hear it again.

The barometer is consulted hourly, and its variations watched with a jealous eye, for we can now appreciate fully how much depends on the weather. So far we have been greatly favoured, but who can tell what another day may bring forth; and the weather-wise insist that the barometer never falls so low without a gale. The anticipation of such a thing is certainly not calculated to set one's mind at rest, be-

leaguered as it is by the fear that some untoward accident may happen to the *Agamemnon*, which would cause the rupture of the cable.

At twelve o'clock to-day we were in lat. $51^{\circ} 5'$, long. $38^{\circ} 28'$, having made the following run:—

Distance made good by observation	137 miles.
By ship's log	141½ "
By engineer's log	142½ "
By patent log.	137.6 "

while the length of cable payed out during the preceding twenty-four hours was 159 miles 843 fathoms, showing a surplus of twenty-two miles over the distance run, which is an expenditure of 17 per cent. The depth of water varied from 1,657 to 2,250 fathoms. Wind E.b.S.E. The *Agamemnon* informed us at a quarter to three o'clock, p.m., by telegraphic signal, that they had payed out 300 miles of cable up to that time.

Sunday, August 1st.—Confidence is growing stronger, and there is considerable speculation as to the time we shall reach Newfoundland. The pilot who is to bring us into Trinity Bay is now in great repute, and is becoming a more important personage every day. His opinion is solicited in regard to the weather, as he is supposed to know something about it in these latitudes, and he is particularly catechised on the navigation of the bay and the formation and character of the coast. We are really beginning to have strong hopes that his services will be called into requisition, and that in the course of a few days more we shall be in sight of land.

The night has passed without accident, the barometer is rising, and the wind has gone round to the N.W., a sure indication that we shall have clear weather. But the sea is not at all so smooth as it was the day before; it is in fact so rough as to favour the belief that there must have been a severe gale a short time since in these latitudes. The condition of the vessel is such as to alarm us greatly for the safety of the cable, should it come on to blow very hard, as the large amount already payed out, and the quantity of coal consumed, have lightened her so much as to render her rather uneasy in a heavy sea. Both wind and sea are nearly abeam, and the rolling motion which the latter creates, brings a strain on the cable which gives rise to the most unpleasant feelings. The sea, too, seems to be getting worse every minute, and strikes the slender wire with all its force. Every surge of the ship affects it, and as it cuts through each wave, it makes a small white line of foam to mark its track. The sight of that thread-like wire battling with the sea, produces a feeling somewhat akin to that with which you would watch the struggles of a drowning man, whom you have not the power of assisting. You can only look on, and trust either that the sea will go down or that the cable may be able to resist the force of the waves successfully. Of the former there is very little prospect, but of the latter there is every reason for hope. The struggle has been going on now for several hours, and there is no more sign of the cable parting than when it commenced.

The electricians report the continuity perfect, and the signals which are received at intervals from the *Agamemnon* show that that vessel is getting along with her part of the work in admirable style. What more can we desire? However improbable it may appear, there are some who seem to think less of their own lives than they do of the tarred line now running over the stern; and there are few who would not risk their own safety to secure that of the cable. This is paramount to all other considerations, and every one feels that it is so, from the apprentice boy to the captain.

We have made a better run to-day than during any twenty-four hours since we started. At twelve o'clock we were in lat. $50^{\circ} 32'$, long. $41^{\circ} 55'$, having made from 139 to 145 miles, as is shown by the following:—

Distance run by observation	145 miles.
By ship's log	139 "
By engineer's log	142 "
By patent log	141.7 "

In running this distance we have paid out 164 miles 683 fathoms of cable, which shows a surplus of 19 miles 683 fathoms over the distance run by observation, or about 14 per cent. The depth of the water varied from 2,424 to 1,950 fathoms, and the wind, which blew from W.N.W., freshened very considerably. It did not, however, attain the force of a gale, and what was still more gratifying, began to fall as night approached, while the barometer continued rising.

Monday, 2nd.—There was a very heavy swell, like that after a gale, during the whole of this day, and our ship rolled as she never rolled before, and as we had hardly considered her capable of doing. The cable, however, exhibited no sign of parting, and ran out at an angle with the water that showed it was not affected by a strain greater than the 1,800 pounds which had been put on the brakes. As for the machinery itself, nothing could be more perfect than the way it worked—no jarring, no irregularity of motion, but everything in and about it was as steady and as perfect in its operation as clock work. It has been running four days altogether, and is just as reliable now as when it was set in motion after the splice was lowered in mid-ocean.

During the night the continuity was again affected, and although it was restored and became as strong as ever, yet it was for about three hours a very unpleasant affair. It was subsequently found that the difficulty was caused by a defect of insulation in a part of the wardroom coil, which was cut out in time to prevent any serious consequences. There were only a few on board the ship, however, aware of the occurrence until after the defect was removed and the electrical communication was re-established between the two ships. Both Mr. Laws and Mr. De Santy, the two electricians on board the *Niagara*, were of the opinion that the insulation was broken in some part of the wardroom coil, and on using the tests for the purpose of ascertaining

the precise point, they found that it was about sixty miles from the bottom of that coil, and between three and four hundred miles from the part which was then paying out. The cable was immediately cut at this point, and spliced to a deck coil of ninety miles, which it was intended to reserve for laying in shallow water, and was therefore kept for Trinity Bay. About four o'clock in the morning the continuity was finally restored, and all was going on as well as if nothing had occurred to disturb the confidence we felt in the success of the expedition.

At noon we were in latitude $49^{\circ} 52'$, long. $45^{\circ} 87'$, and had run by observation 154 miles, and by log as follows:—

By ship's log	144 miles.
By engineer's log	141.75 „
By patent log.	141.3 „

The length of cable laid out was 177 miles 100 fathoms for the preceding twenty-four hours, which is a surplus of 23 miles 100 fathoms over the distance, or 15 per cent. The depth of water was from 2,385 to 1,600 fathoms. Wind North. The signals which have been received from the *Agamemnon* inform us that she is paying out at the rate of seven and eight miles an hour, from which we derive the assurance that she has fine weather, and that, like ourselves, she is making the most of it. The night has set in fine. The barometer continues rising, and although the vessel still rolls considerably, we have had experience enough to tell us there is nothing to be feared from this motion.

Tuesday, 3rd.—This is the anniversary of the day on which Christopher Columbus discovered America—is it to be still further signalized as one of those on which the work of connecting the Old and the New Worlds was accomplished? Heaven grant that it may be so, although it seems almost like presumption to hope; and yet there is a strong undercurrent of confidence that seems to be the precursor of success. Although we are still about 200 miles from land, and a kink in the cable, or a hole running through the gutta percha into the conductor—and through which you could not even force a hair,—would render the labour of years utterly unavailing, we are so confident now, that we are calculating on seeing land to-morrow morning sometime about six o'clock, as the observation which was taken at noon to-day shows that it is not more than 150 miles off.

The great work of this morning was the change from the fore hold coil to that in the wardroom, which are at least 200 feet apart. This took place at eight o'clock in the morning, and as the time was known to all on board there was even a larger crowd assembled to witness it than I observed at any of the other changes. It was considered a most critical time, and, although the operation turned out to be very simple, it was anticipated by some with considerable uneasiness. The splice between the two coils had been made some hours in advance, and men were stationed all along the line of its course from the hold

to the wardroom. Mr. Everett and Mr. Woodhouse were both on hand, the best men had been picked out to pass up the bight or bend when the last turn should be reached, and one man, named Henry Paine, a splicer, was specially appointed to walk forward with the bight to the after or wardroom coil. As the last flake was about to be payed out the ship was slowed down, and by the time the last three or four turns came to to be payed out she could hardly be said to be moving through the water. The line came up more slowly from the hold, until they were nearing the bight, when it could not have been going out faster than half a mile an hour. One more turn and the bight comes up. There is not a sound to be heard from the crowd who are watching it with eager and anxious faces from every point of view. No one speaks or has ventured to speak for the last minute, except the engineers, and they have very little to say, for their orders are conveyed in the most laconic style, and the quick "Aye, aye" of the men show that they understand the full value of time. "Now, men," says Mr. Everett, "look out for the bight," as those in the hold hand it up to the men on the orlop deck, and it is passed from hand to hand till it reaches the platform and long passage which has been built upon the spar deck for this part of the work. Here the bight arrives at last, and Paine takes it in his hand, paying out as he follows the line of the cable to the wardroom coil. How anxiously the men watch him as he walks that terrible distance of two hundred feet, and think that if he should happen to trip or stumble while he holds that bight in his hand, the great enterprise may end in disaster. It is not a difficult task, but how often have things that are so easily performed been defeated by want of coolness. There is, however, such an easy self-possession about the man as he comes slowly after the long black line that inspires confidence. All hands have deserted the decks below, and follow him as he walks aft, and one in his impatience to get a glimpse of him has nearly fallen through the skylight of the engine-room, in which he has smashed several panes of glass in the effort to save himself. "Pick up the pieces," says Paine, in a vein of quiet humour, as he proceeds on his course without interruption, and, coming up to the wheel, which is immediately above the wardroom, he straightens the bight, and the cable begins to run out from the top of the coil on the deck beneath. His work is done, and as the line passes out of his hands, he receives a round of applause from the hands of the spectators, who, but for those terrible navy rules, would have greeted him with a cheer that would have done his heart good. As it is, they must give vent to their feelings in some way, and the exclamations of "Well done!" "That's the fellow!" "By thunder, it's all right!" "Good boy, Paine!" are not a bad compromise, after all. Besides, it might be rather premature at this time to indulge in any triumphant expression of feeling before we are even in sight of land.

The observations taken at noon to-day place us in lat. $49^{\circ} 17'$, long. $49^{\circ} 23'$, showing that we have run since twelve o'clock yesterday, 147 miles. Our run, according to the different logs, is as follows:—

By ship's log	.	.	.	.	137 miles.
By engineers' log	.	.	.	.	138½ "
By patent log	.	.	.	.	134½ "

In making this distance 161 miles 763 fathoms of cable were payed out, which shows a surplus of 14 miles 613 fathoms expended, or an excess of ten per cent. The depth of water varied from 882 to 742 fathoms. Wind N.W.

At half-past two the *Gorgon* made a signal to us, which, translated from the numbers, reads as follows:—

“ I congratulate you on your success.”

To this the following signal was sent:—

“ Accept my best thanks.”

The weather was magnificent, and the surface of the ocean was hardly disturbed by a ripple. We saw several icebergs, some of the most gigantic dimensions, rising from an altitude of from fifty to one hundred feet. They were fashioned into a wonderful variety of forms, castles, towers, forts, gothic church spires, columns, and one had a gigantic arch that seemed to rest on columns of emerald. The effect of the sun upon this was magnificent.

The calm that rested on the waters during the day was prolonged into the night, in the subdued darkness of which we can still discover some of the icebergs looming up above the water like immense rocks. There will be little sleeping on board the *Niagara* this night, for early morning will bring the long-wished-for land in sight, and every one will be on the look out.

Wednesday, 4th.—The morning of this day will be memorable in the history of the world, as that on which the *Niagara* first came in sight of the island outpost of the American continent, and bearing to its shores one end of that great electric chain which is to bring the Old World into the closest communion with the New. And what a morning this is—so bright and so clear within a few miles of the shores of a country which has been truly termed the land of fogs! There is not a breath of air, and were it not for its ever heaving pulse, the ocean would be as still and as motionless as the depths of the great plateau itself. As everybody is anxious to see the land, everybody is on the look out. The men in the foretop are not satisfied with that elevation, and have gone up some fifty or sixty feet higher, while the main and mizen masts have each a number of volunteers, and every one of whom expects to be the first to report land. The forecabin has its look-outs too, although there is no prospect of their getting ahead of the others.

About eight, the cheering cry of “Land-ho!” rang through the ship like a clarion note of triumph. Land at last, after six days of such anxiety and suspense as few men ever pass through,—six days of weary watching, of feverish restlessness, and ending in nights that brought no repose. Land at last—yes, there it is, defined boldly and

distinctly against the western horizon. Old friends at home, who believed we could not succeed, and who trembled as they read of that fearful gale and the dangers through which we passed, had you seen the glowing faces and the tears of joy that filled the eyes of all as we gazed upon the glad sight for hours, you too would have felt as we felt. With what deep earnestness we thought then of home, and how we conjured up before our mental vision the glad faces that would welcome us on our arrival.

It is now half-past two o'clock a.m., and we are entering Trinity Bay at a speed of seven and a half knots an hour, paying out the cable at a very slight increase on the same rate. A signal, signifying "All well," has been received from the *Agamemnon*, which must now be on the point of landing her cable in Valentia Bay, Ireland, which is about 1,640 miles from our present position.

A few minutes after five a steamer was reported far in the bay, and soon after she was made out to be the *Porcupine*. In half an hour her commander, Captain Otter, came aboard, and had a consultation with Mr. Field and Captain Hudson. He had, he said, given up all hope of seeing the *Niagara*, but had nevertheless posted lookouts on Bull Island, which commands a view of the bay and a long distance out to sea. The minute he heard of her arrival he sent a telegraphic despatch to St. John's to notify the people there of the fact. Mr. Field, himself, soon after went up to the telegraph station, which is fifteen miles from where our ship now is, with despatches for New York, which will be received there to-night at least an hour earlier than they are sent.

The *Gorgon* hoisted the American flag some hours ago at the fore, and the *Niagara* carries the English at the fore, while the telegraph flag floats from her mizen. Our progress up the bay is rather slow, on account of the condition of the cable already alluded to, and it is now settled that we cannot get to our landing place near the station before to-morrow morning. We are paying out the cable at three miles an hour.

Thursday, 5th.—At ten minutes past two this morning preparations were made for the landing of the cable, and the *Niagara* is brought to an anchor for the purpose. It is still quite dark, and we can only see the outlines of the hills which tower above us on every side, showing that we are in a completely landlocked harbour. We have just received the news from the electricians that a telegraphic despatch or signal has been sent from the *Agamemnon*, informing them that 1,010 miles of cable have been paid out from that ship up to the last hour. The intelligence is peculiarly gratifying at this time, and adds to the enthusiasm which every one feels. The operators have been at work all day and night, and still labour with as much zeal as at the commencement. Nobody has thought of going to bed, except a few who are so exhausted by their long watching as to render rest a matter of imperative necessity. Three of the *Niagara's* boats have been lowered, and two of these are to hold or buoy the cable at some distance from the stern of the vessel, while the third receives a sufficient length to

reach the telegraph station, which is about half a mile from the shore. As the *Niagara* has been brought to anchor, the cable is paid out over the machines with the aid of the little steam engine, which is put in gear with the paying out sheaves. About a mile and a half is lowered and coiled in the boat, and by sunrise everything is ready for the completion of the work.

Before the landing of the cable Captain Hudson notified the captains of the *Gorgon* and *Porcupine*, and about five o'clock the boats of the *Niagara* were ranged in a regular line and connected with a hawser, to tow that on which the cable was coiled to the landing place. The telegraph flag was displayed from the mizen truck, while the English flag was hoisted at the fore, and the American at the mizen peak. A similar compliment was paid to the American flag by the British vessels; and soon after our boats pushed off from the ship we observed others coming from the *Gorgon* and *Porcupine* to participate in the consummation of the great work. All the officers of the *Niagara*, with the exception of those on watch in the ship, were in the boats, the crews of which numbered altogether about sixty men. These, with the crews from the boats of the British ships, and all the officers, English and American, made a total of about one hundred men.

The landing place for the cable is a very picturesque little beach, on which a wharf has been constructed. A road, about the dimensions of a bridle path, has been cut through the forest; and up this road, through bog and mire, you find your way to the telegraph station, about half a mile distant. Alongside of this road, a trench has been dug for the cable, to preserve it from accidents to which it might otherwise be liable.

When the boats arrived at the landing, the officers and men jumped ashore, and Mr. North, first lieutenant of the *Niagara*, presented Captain Hudson with the end of the cable. Captain Otter, of the *Porcupine*, and Commander Dayman, of the *Gorgon*, now took hold of it, and all the officers and men following their example, a procession was formed along the line. As the cable was covered with tar, the handling of it was rather objectionable, but there were none who, under the circumstances, refused to take part in the landing. There were some, it is true, who would not at first put their bare hands to it, and who sought to protect them with gloves or by covering the cable with moss. This movement, however, was rather unpopular; so the gloves were taken off, and although part of the moss adhered to the cable, there was little of it used afterwards. The road or path over which we had to take the cable was a most primitive affair. It led up the side of a hill a couple of hundred feet high, and had been cut out of the thick forest of pines and other evergreens. In some places the turf, which is to be found here on the top of the highest mountains, was so soft with recent rains that you would sink to your ancles in it. The road maker or makers, whoever they were, had evidently done all in their power at the short notice they had to make it passable, and it is enough to say they succeeded to that extent, al-

though we could not help wishing that they had not placed the stepping stones so far apart, and had been a little more liberal in the use of timber. Well, it was up this road we had to march with the cable, and a splendid time we had. It was but reasonable to suppose that the three captains, who headed the procession, would certainly pick out the best parts, and give us the advantage of the stepping stones; but it appeared all the same to them, and they plunged into the boggiest and dirtiest parts with a recklessness and indifference that satisfied us they were about the worst pilots we could have had on land, despite their well known abilities as navigators.

This remarkable procession started at a quarter to six o'clock, and arrived at the telegraph station about twenty minutes after. The ascent of the hill was the worst part of the journey, but when we got to the top the scene which opened before us would have repaid us for a journey of twenty miles over a still worse road. There, beneath us, lay the harbour, shut in by mountains, except at the entrance of Trinity Bay, and there, too, lay the steamers of the two greatest maritime nations in the world. On every side lies an unbroken wilderness, and, if we except the telegraph station, at which we shall soon arrive, not a single habitation to tell that man has ever lived here.

The continuity, without which the cable would be utterly valueless, is as perfect now as it ever was. Mr. D. Laws and Mr. De Sauty, the two chief electricians, who have accompanied us from England, have "tasted" the current, and about a dozen others at the head of the procession have done the same thing. The writer himself is a witness on this point, and will never forget the singular acid taste which it had. Some received a pretty strong shock—so strong that they willingly resigned the chance of repeating the experiment.

About twenty minutes after we started from the beach, we reached the station of the Atlantic telegraph on this side of the ocean, where we found some half dozen of the inmates awaiting our arrival. The station is a large frame building two stories high, and eight windows wide.

On the arrival of the procession the cable is brought up to the house and the end placed in connection with the instrument. The deflection of the needle on the galvanometer gives incontrovertible evidence that the electrical condition of the cable is satisfactory. The question now is how shall we properly celebrate the consummation of the great event? How, but by an acknowledgement to that Providence without whose favour the enterprise must have ended in disaster and defeat? Every one feels that this is all that is necessary to make the celebration complete, and to mark the undertaking as the work of two great Christian nations. When, therefore, together before the telegraph station they understood the purpose for which they were assembled, Captain Hudson took up his position on a pile of boards, the officers and men standing round amid shavings, stumps of trees, pieces of broken furniture, sheets of copper, telegraph batteries, little mounds of lime and mortar, branches of trees, huge boulders, and a long catalogue of other things equally incongruous.

"We have," said the captain, "just accomplished a work which has attracted the attention and enlisted the interest of the whole world. That work," he continued, "has been performed, not by ourselves; there has been an Almighty Hand over us and aiding us; and without the Divine assistance thus extended us, success was impossible. With this conviction firmly impressed upon our minds, it becomes our duty to acknowledge our indebtedness to that overruling Providence who holds the sea in the hollow of his hand. 'Not unto us, Oh Lord! not unto us, but to thy name be all the glory.' I hope the day will never come when, in all our works, we shall refuse to acknowledge the overruling hand of a Divine and Almighty Power. It is he who can rebuke the winds and calm the seas. He works in a mysterious way for his people. His path is on the mighty waters. We have seen His power in the tempest; and when we have called upon him in the time of trouble, He has heard our voice. And yet how ungrateful we are for all his favours, and how soon we forget Him when the trouble passes away like a summer cloud or the morning dew. On a solemn occasion like the present we should feel more particularly our indebtedness to Him, and it is with a feeling of heartfelt gratitude we should acknowledge the many favours which He has bestowed upon us. There are none here, I am sure, whose hearts are not overflowing with feelings of the liveliest gratitude to Him, in view of the great work which has been accomplished through His permission, and who are not willing to join in a prayer of thanksgiving for its successful termination. I will therefore ask you to join me in the following prayer, which is the same, with a few necessary alterations, that was offered for the laying of the cable:—

"O, Eternal Lord God, who alone spreadest out the heavens and rulest the raging of the sea, who has compassed the waters with bounds till day and night come to an end, and whom the winds and the sea obey—look down in mercy, we beseech Thee, upon us, Thy servants, who now approach the throne of grace, and let our prayer ascend before Thee with acceptance. Thou hast commanded and encouraged us in all our ways to acknowledge Thee, and to commit our works to Thee, and Thou hast graciously promised to direct our paths and to prosper our handiwork. We desire now to thank Thee, believing that without Thy help and blessing nothing can prosper or succeed, and we desire humbly to commit all who have been engaged in this undertaking to Thy care, protection, and guidance. It has pleased Thee to enable us to complete what we have been led by Thy providence to undertake, that being begun and carried on in the spirit of prayer and in dependence upon Thee, it may tend to Thy glory, and to the good of all nations, by promoting the increase of unity, peace, and concord. May Thy hand of power and mercy be so acknowledged by all that the language of every heart may be, 'Not unto us, O Lord; not unto us, but unto Thy name give glory;' that so Thy name may be hallowed and magnified in us and by us. Thou hast controlled the winds and the sea by Thy almighty power, and granted us such favourable weather that we were enabled to lay the

cable safely and effectually. Finally, we beseech Thee to implant within us a spirit of humility and childlike dependence upon Thee; and teach us to feel, as well as to say, 'If the Lord will, we shall do this or that.' Hear us, O Lord, and hear us in these our petitions according to thy precious promise, for Jesus Christ's sake."

The "Amen" which followed the conclusion of this prayer showed what a sincere response it received from the hearts of all present and the depth of feeling it excited. "You recollect," proceeded the captain, "what our Saviour told his disciples, that if they had faith, even as a grain of mustard seed, they could move mountains. We have performed a work, or rather we are thankful to God for having performed a work for us, which has been ridiculed by a great many who regarded it as an impossibility. We have been peculiarly favoured in being permitted to be His agents, and we are pleased to acknowledge that it was through His instrumentality the work was performed."

At the close of the foregoing remarks the audience of "cable layers" dispersed, some to amuse themselves in short excursions about the grounds adjoining the station, and others in exploring the mysteries of the building itself. About an hour after, the captain, officers, and men assembled on the beach where the cable had been landed, and where they reembarked for their several ships.

Up to this point everything had been conducted with silence and in a spirit of moderation which some might consider as ill suited to the greatness of the work and the feeling which the occasion might reasonably be supposed to call forth. Had such a scene occurred in the harbour of New York, it would have been impossible to restrain the wild enthusiasm and excitement of the people. And who is there under the circumstances that would desire to do so? But the men who laid that tarred line across one half of the Atlantic, and who had passed six days in anxious watching, in terrible suspense, and in the midst of apprehensions, one day hoping against hope, and the next fearing when the prospect appeared brightest, thinking of the one thing by day and dreaming of the one thing in their short and troubled sleep, until it seemed as if on that slender cable their very lives depended, and the accident that proved fatal to its safety were to put an end to their existence—these men were not devoid of enthusiasm. No, no, there was no want of enthusiasm among them; but it was determined that they should not give vent to it till the work was wholly accomplished—till the cable was landed, till they had carried the end in safety to the telegraph station, and till they had returned thanks to that Providence whose agents they were in the working out of the greatest achievement which has ever been conceived or performed by man. Want of enthusiasm! Oh, had the people of New York—of the United States—of the Two Worlds, heard the wild huzza that went ringing over the hills, chasing the deer from their coverts, sending thousands of startled seabirds out upon the ocean, as if the land no longer afforded them a place of security—had they seen the faces of those men, they would understand what enthusiasm is, and how unjust the suspicion that denied them the possession of an

attribute only second to hope itself. A cheer it could hardly be called; it was one wild prolonged shout of delirious joy, such as might welcome the disenthralment of a nation, or the union of two worlds—a union in which we all participated, you and I and every one of us, and the remembrance of which will live with us to the end. How eagerly we all waited for the word that told us the time had come when we might give vent to the feelings that had been so long restrained. And when the first lieutenant of the *Niagara* called upon us to give three cheers, what tongue could have remained silent, were it even the last sound it could utter?

“Now, men, three cheers,” he cried, and the last word had hardly been spoken when the demand was responded to with an outburst that came from the very depth of the heart. “Hurrah, hurrah, hurrah!” each louder and wilder than the last; and as the final cheer burst forth, the echoes took it up and repeated it again and again, till it seemed as if the wilderness around were peopled, and thousands of voices in every valley and on every mountain top joined in the glad shout of rejoicing. But three cheers are not enough—we must give another “for coming up”—that is, for the last pull, for the landing of the cable. And still another is demanded, one which cannot be refused if it were the last cheer we should ever give. It is “One for America and England,” and it is called for by Captain Otter, of the *Porcupine*, a gentleman whose earnest labours and whose untiring energy in his share of the work entitle him to the warmest praise. It was Captain Otter who surveyed the Bay of Bulls Arm, and who guided us safely through all the intricacies of the passage the night of our entrance into Trinity Bay. To him and to Captain Dayman, of the *Gorgon*, who acted as our escort and pilot, from mid-ocean to the American terminus of the line, the Atlantic Telegraph Company are largely indebted. It is doubtful if the British Government could have selected from its long list of naval officers two who have proved themselves more capable of performing the work with which they were entrusted, or two who were more earnest in their exertions to promote the success of the great undertaking.

While the boats of the *Niagara* were on their way to that ship, they were cheered by the crews of the *Gorgon* and *Porcupine*, and at twelve o'clock a salute of twenty-one guns was fired from the former vessel.

As a large number of the men on board our ship had been at work all night, those who wished were allowed to “turn in,” and there were very few who did not take advantage of the permission, and fewer still who did not enjoy their rest. They had worked hard and well, and took as deep an interest in the success of the work as those who had perhaps a greater stake in it.